

Claims

1. An optical switch including at least three input and output optical paths in total and performing the changeover of the optical paths by changing the combination of the input optical path and the output optical path which transmit light to each other, wherein

a first region in which a front surface of a mirror member which is movable relative to the input optical path and the output optical path is allowed to face the input optical path and the output optical path thus forming a pair of light reflection surfaces which cross each other with a given angle, and a second region in which a plural pairs of light reflection surfaces are formed in a state that the neighboring light reflection surfaces cross each other with given angles, are arranged in front of the mirror member and along the moving direction of the mirror member.

2. An optical switch according to claim 1, wherein the optical switch includes an actuator for moving the mirror member.

3. An optical switch according to claim 1, wherein portions of the input optical path and the output optical path which face the front surface of the mirror member are integrally formed with each other.

4. An optical switch according to claim 1, wherein a light

which is radiated from some input optical paths among the plurality of input optical paths is incident on some output optical path among the plurality of output optical paths by being reflected on the light reflection surfaces formed in the first region and a light which is radiated from another input optical paths is incident on another output optical path by being reflected on the light reflection surfaces formed in the first region, while a light which is radiated from some input optical paths among the plurality of input optical paths is incident on another output optical path among the plurality of output optical paths by being reflected on the light reflection surfaces formed in the second region and a light which is radiated from another input optical paths is incident on some output optical path by being reflected on the light reflection surfaces formed in the second region.

5. An optical switch according to claim 1, wherein the optical switch includes means which monitors which one of the first region and the second region among the front surface of the mirror member faces the input optical path and the output optical path.

6. An optical switch according to claim 1, wherein a spatial optical path length from a position where the light radiated from the input optical path is radiated from the input optical path to a position where the light is incident on the output optical path after being reflected on the light

reflection surface in the first region is set equal to a spatial optical path length from a position where the light radiated from the input optical path is radiated from the input optical path to a position where the light is incident on the output optical path after being reflected on the light reflection surface in the second region.